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**COMMITTEE OF EXPERTS ON THE
TRANSPORT OF DANGEROUS GOODS**

**Sub-Committee of Experts on the
Transport of Dangerous Goods
(Fourteenth session,
Geneva, 8-18 December 1997,
agenda item 2 (d) and 4 (b))**

DRAFT AMENDMENTS TO THE MODEL REGULATIONS ON THE TRANSPORT OF DANGEROUS GOODS

Other draft amendments

Physical hazards

Addition of a classification pathway identifier to the proper shipping name of organic peroxides

Transmitted by the Observer from New Zealand

Introduction

At the thirteenth session of the Sub-Committee New Zealand presented an informal paper INF.3. This paper outlined a number of concerns relating to the classification of Flammable and Reactive Substances in the proposed Globally Harmonised System. During the Working Group meeting, New Zealand was invited to present formal papers to the fourteenth session of the Sub-Committee.
New Zealand is currently developing Regulations for the Hazardous Substances and New Organisms (HSNO) Act. This Act implements the concepts and philosophy of the Globally Harmonised Chemical Classification System to New Zealand's Domestic Legislation. While developing these Regulations, we discovered some serious problems in applying the current UN transport classification criteria to the controls needed for worker, consumer and environmental safety.

The difficulty arises from the UN classification's use of packaging to modify the risk and thus the classification of Organic Peroxides and Self-Reactive substances. Workers and consumers will remove the Organic Peroxides or Self-Reactive Substances from the packaging. Thus the current UN classification system does not provide an adequate level of safety for these parts of the Organic Peroxides and Self-Reactive Substances lifecycle.

On careful examination of the classification flow chart (Figures 2.1 (a) and 2.2 (a) in the tenth revised edition) we have determined that there are a specific number of unique pathways through the flow chart for each exit point A to G.

New Zealand's Position re the Globally Harmonised Classification System

New Zealand strongly supports the creation of a Globally Harmonized Chemical Classification System. We also strongly support the Terms of Reference of the CG/HCCS. Our position is stated in ST/SG/AC.10/C.3/1997/68. This position is the same as the position presented in INF.3 at the thirteenth session on the Sub-Committee.

Proposal

That a unique pathway identifier be added to the Organic Peroxide and Self-Reactive Substances Proper Shipping Name. This will clearly indicate the inherent hazards associated with the specific Organic Peroxide or Self-Reactive Substance. These unique pathways are detailed in Annex.

There are

- Four (4) unique pathways through the flow chart which result in a Type A classification
- Seven (7) unique pathways through the flow chart which result in a Type B classification.
- Eleven (11) unique pathways through the flow chart which result in a Type C classification.
- Three (3) unique pathways through the flow chart which result in a Type D classification.
- Two (2) unique pathways through the flow chart which result in a Type E classification.
- Two (2) unique pathways through the flow chart which result in a Type F classification.
- One unique pathways through the flow chart which result in a Type G classification. Type G is also specified by the criteria for Organic Peroxides and Self-Reactive Substances.

We propose that the Proper Shipping Name for Organic Peroxides and Self-Reactive Substances are modified to include this unique pathway identifier. For example

ORGANIC PEROXIDE TYPE C, LIQUID, UN 3103

would become

ORGANIC PEROXIDE TYPE Cx, LIQUID, UN 3103, where **x** is the unique pathway identifier. For type C Organic Peroxides this would be a number between 1 and 11

Example

Figure 20.3 in the Tests and Criteria Manual, gives an example of the UN classification of **TERT-BUTYL PEROXY BENZOATE**. This is a **Organic Peroxide Type C, liquid, UN 3103.**

We will use this classification to illustrate the application of the proposed pathway identifier. Following through the flow chart and referencing the Type C table in Annex of this paper, results in the following classification.

Box in Flow Chart	**Possible pathways from Annex1**
Box 1 Partial Detonation	Types C5 or C6 or C7
Box 4 Slow or no deflargration	Type C7

After box 4 there are no other possible pathway choices which would result in a Type C classification Applying the pathway identifier the Proper Shipping Name now becomes:

Organic Peroxide Type C7, liquid, UN 3103

This Organic peroxide displays all the properties associated with row C7 in the table given in Annex 1.

Justification

This pathway identifier clearly identifies the properties of this Organic Peroxide both in the laboratory tests and in the packaged tests. In the above example this formulation of **TERT-BUTYL PEROXY BENZOATE** can be identified as having the following properties.

C7	Propagates a partial detonation UN t/s A	Propagates a slow deflagration UN t/s C	Violent effect when heated under defined confinement UN t/s E	Does not undergo a thermal explosion as confined UN t/s G

With this information readily available from the pathway identifier, appropriate safety measures can be taken in the workplace. The laboratory test results are significant as the modifying effect of packaging has been removed.

By adopting the pathway modifier

1. worker and consumer safety will be enhanced.

2. No new UN numbers need to be created.

3. There is minimal effect on the Marking, Labelling and Documentation required.

4. The need to make widely available the original test results is minimised as all the relevant information is readily available.

   (a) As the test results are immediately known from the pathway identifier, this will reduce the number of times the full test results will have to be submitted for Regulatory Approvals.

5. Hazard communication has been enhanced.

6. Minimum change has been made to the UN classification system.

Recommendation

The Committee is urged to adopt the proposed pathway identifier for Organic Peroxides and Self-Reactive Substances. This will ensure that the inherent hazards are clearly communicated. This will enable appropriate controls to be placed on these substances outside of the transport sector. In particular this will allow appropriate controls to be placed on these substances when packaging is not involved.

We strongly believe that the current UN classification is not workable when applied to the protection of workers, consumers and the environment, when these substances are not in packages.

*****

Annex

Proposed modification to UN Classification

UN Test Series H must be carried out on all OP's and Self-Reactive Substances to determine their Self Accelerating Decomposition Temperature (SADT).

Type A (4 possible combination of test results) redefined as:

A1	Propagates a detonation UN t/s A	Propagates a detonation as confined UN t/s B		
A2	Propagates a detonation UN t/s A	Does not propagate a detonation as confined UN t/s B	Propagates a rapid deflagration UN t/s C	Propagates a rapid deflagration as confined UN t/s D
A3	Propagates a partial detonation UN t/s A	Propagates a rapid deflagration UN t/s C	Propagates a rapid deflagration as confined UN t/s D	
A4	Does not propagate a detonation UN t/s A	Propagates a rapid deflagration UN t/s C	Propagates a rapid deflagration as confined UN t/s D	

Type B (7 possible combination of test results) redefined as:

B1	Propagates a detonation UN t/s A	Does not propagate a detonation as confined UN t/s B	Propagates a rapid deflagration UN t/s C	Does not propagate a rapid deflagration as confined UN t/s D	Violent effect when heated under defined confinement UN t/s E	Undergoes a thermal explosion as confined UN t/s G
B2	Propagates a detonation UN t/s A	Does not propagate a detonation as confined UN t/s B	Propagates a slow deflagration or no deflagration UN t/s C	Violent effect when heated under defined confinement UN t/s E	Undergoes a thermal explosion as confined UN t/s G	
B3	Propagates a partial detonation UN t/s A	Propagates a rapid deflagration UN t/s C	Does not propagate a rapid deflagration as confined UN t/s D	Violent effect when heated under defined confinement UN t/s E	Undergoes a thermal explosion as confined UN t/s G	
B4	Propagates a partial detonation UN t/s A	Propagates a rapid deflagration UN t/s C	Does not propagate a rapid deflagration as confined UN t/s D	Violent effect when heated under defined confinement UN t/s E	Undergoes a thermal explosion as confined UN t/s G	
B5	Does not propagate a detonation UN t/s A	Propagates a rapid deflagration UN t/s C	Does not propagate a rapid deflagration as confined UN t/s D	Violent effect when heated under defined confinement UN t/s E	Undergoes a thermal explosion as confined UN t/s G	

B6	Does not propagate a detonation UN t/s A	Propagates a slow deflagration UN t/s C	Violent effect when heated under defined confinement UN t/s E	Undergoes a thermal explosion as confined UN t/s G		
B7	Does not propagate a detonation UN t/s A	Does not propagate a deflagration UN t/s C	Violent effect when heated under defined confinement UN t/s E	Undergoes a thermal explosion as confined UN t/s G		

Type C (11 possible combination of test results) redefined as:

C1	Propagates a detonation UN t s A	Does not propagate a detonation as confined UN t s B	Propagates a rapid deflagration UN t s C	Does not propagate a rapid deflagration as confined UN t s D	Violent effect when heated under defined confinement UN t s E
C2	Propagates a detonation UN t s A	Does not propagate a detonation as confined UN t s B	Propagates a slow deflagration or no deflagration UN t s C	Violent effect when heated under defined confinement UN t s E	
C3	Propagates a detonation UN t s A	Does not propagate a detonation as confined UN t s B	Propagates a rapid deflagration UN t s C	Does not propagate a rapid deflagration as confined UN t s D	Medium, low or no effect when heated under defined confinement UN t s E
C4	Propagates a detonation UN t s A	Does not propagate a detonation as confined UN t s B	Propagates a slow deflagration or no deflagration UN t s C	Medium, low or no effect when heated under defined confinement UN t s E	
C5	Propagates a partial detonation UN t s A	Propagates a rapid deflagration UN t s C	Does not propagate a rapid deflagration as confined UN t s D	Violent effect when heated under defined confinement UN t s E	Does not undergo a thermal explosion as confined UN t s G
C6	Propagates a partial detonation UN t s A	Propagates a rapid deflagration UN t s C	Does not propagate a rapid deflagration as confined UN t s D	Medium, low or no effect when heated under defined confinement UN t s E	
C7	Propagates a partial detonation UN t s A	Propagates a slow deflagration UN t s C	Violent effect when heated under defined confinement UN t s E	Does not undergo a thermal explosion as confined UN t s G	
C8	Does not propagate a detonation UN t s A	Propagates a rapid deflagration UN t s C	Does not propagate a rapid deflagration as confined UN t s D	Violent effect when heated under defined confinement UN t s E	Does not undergo a thermal explosion as confined UN t s G
C9	Does not propagate a detonation UN t s A	Propagates a rapid deflagration UN t s C	Does not propagate a rapid deflagration as confined UN t s D	Medium, low or no effect when heated under defined confinement UN t s E	
C10	Does not propagate a detonation UN t s A	Propagates a slow deflagration UN t s C	Violent effect when heated under defined confinement UN t s E	Does not undergo a thermal explosion as confined UN t s G	
C11	Does not propagate a detonation UN t s A	Does not propagate a deflagration UN t s C	Violent effect when heated under defined confinement UN t s E	Does not undergo a thermal explosion as confined UN t s G	

Type D (3 possible combination of test results) redefined as:

D1	Propagates a partial detonation UN t/s A	Propagates a slow deflagration or no deflagration UN t/s C	Medium, low or no effect when heated under defined confinement UN t/s E
D2	Does not propagate a detonation UN t/s A	Propagates a slow deflagration UN t/s C	Medium, low or no effect when heated under defined confinement UN t/s E
D3	Does not propagate a detonation UN t/s A	Does not propagate a deflagration UN t/s C	Medium effect when heated under defined confinement UN t/s E

Type E (2 possible combination of test results) redefined as:

E1	Does not propagate a detonation UN t/s A	Does not propagate a deflagration UN t/s C	Low or no effect when heated under defined confinement UN t/s E	Not intended to be stored or transported in bulk	
E2	Does not propagate a detonation UN t/s A	Does not propagate a deflagration UN t/s C	Low or no effect when heated under defined confinement UN t/s E	Intended to be stored or transported in bulk	Explosive power not low UN t/s F

Type F (2 possible combination of test results) redefined as:

F1	Does not propagate a detonation UN t/s A	Does not propagate a deflagration UN t/s C	Low or no effect when heated under defined confinement UN t/s E	Intended to be stored or transported in bulk	Explosive power not low UN t/s F	Low effect when heated under defined confinement UN t/s E
F2	Does not propagate a detonation UN t/s A	Does not propagate a deflagration UN t/s C	Low or no effect when heated under defined confinement UN t/s E	Intended to be stored or transported in bulk	Explosive power low UN t/s F	

Type G — 1 Path Eleven unique pathways through the flow chart which result in a Type D classification

G1	Does not propagate a detonation UN t s A	Does not propagate a deflagration UN t s C	Low or no effect when heated under defined confinement UN t s E	Intended to be stored or transported in bulk	Explosive power not low UN t s F	No effect when heated under defined confinement UN t s E
G2	By Definition OP's with low available oxygen					

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COMMITTEE OF EXPERTS ON THE TRANSPORT OF DANGEROUS GOODS

Sub-Committee of Experts on the Transport of Dangerous Goods
(Fourteenth session, Geneva, 8-18 December 1997, agenda item 4 (b))

GLOBAL HARMONIZATION OF SYSTEMS OF CLASSIFICATION AND LABELLING OF CHEMICALS

Physical hazards

New Zealand's position on the Globally harmonized chemical classification scheme

Transmitted by the Observer from New Zealand

We strongly support the concept and scope of the globally harmonized chemical classification system (GHS) as stated in the 1992 United Nations Conference on Environment and Development (UNCED) (Agenda 21, Chapter 19, Area B) [**Annex 1**].

We consider the terms of reference for the IOMC Co-ordinating Group for the Harmonisation of Chemical Classification Systems (CG/HCCS), as elaborated during its 8th Consultation On 24-25 June 1996 in Washington, USA. [**Annex 2**] accurately reflect the mandate of Agenda 21.

We endorse the approach taken by the Flammable Substances Working Group to harmonize the classification of flammable gases and flammable liquids. [As reported in ST/SG/AC.10/23/Add.4 (15 Jan 1997)]. The approach is to provide a lower threshold (cut of) value than is currently used in transport for the definition for flammable gases and flammable liquids that:

- creates a classification step below that presently used in transport for those substances that are above the new cut off;
- allows for controls on these substances for risks that may be present in non-transport parts of the life cycle, such as storage, use, manufacture, consumer and environmental safety.

We support this approach because:

it meets the Working Group's terms of reference;

it does not impose additional costs on the transport system;

the classification scheme is based on a substance's intrinsic hazards;

appropriate controls can be applied to those parts of the life cycle where there is significant risk;

it provides a mechanism for each country or region to apply controls to areas other than transport because of unique environmental requirements etc.

Proposed enhancement to the current harmonization proposals

The approach adopted by the Flammable Substances Working Group provides a model that should be used to establish harmonization of standards for other substances. Diagram 1 shows the relationship between a GHS and Recommendations for Transport, using the approach of the Flammable Substances Working Group.

Diagram 1 - Generic Model for GHS

UN Recommendations TDG **And Globally Harmonized System** Controls for Transport
Globally Harmonized System Allows for controls in non transport sectors. Occupational, public and environmental safety
No Controls Required

Explanation of Diagram 1:

Box 1 is equivalent to the Recommendations for Transport requirements

Box 2 would apply where the GHS cut off is lower than the Recommendations for Transport:

It represents substances with an intrinsic hazard that do not require control for transport;

It should be qualified with the following description:

> That controls for elements of the life cycle outside of the transport system may be required, for example, in storage or handling; and
>
> That for particular substances other transport controls may be required for other hazards e.g. desensitized peroxides or explosives where the desensitizing agent is itself flammable.

Box Three may apply where the GHS uses a general definition or formula. For example, organic peroxides are described by the formula R-0-0-R^ but some organic peroxides or mixtures do not meet the cut off tests for availability of oxygen:

> Substances in Box Three would not require controls for the hazardous property in question, and
>
> Box Three may not be required for a hazard depending on how the GHS cut off is stated

* * * * *

Annex 1

UNCED Agreement

The scope of the globally harmonized system (GHS) as stated in the 1992 United Nations Conference on Environment and Development (UNCED)(Agenda 21, Chapter 19, Area B) agreements is as follows:

Globally harmonized hazard classification and labelling systems are not yet available to promote the safe use of chemicals, inter alia, at the workplace or in the home. Classification of chemicals can be made for different purposes and is a particularly important tool in establishing labelling systems. There is a need to develop harmonized hazard classification and labelling systems, building on ongoing work. A globally harmonized hazard classification and compatible labelling system, including material safety data sheets and easily understandable symbols, should be available, if feasible, by the year 2000.

* * * * *

Annex 2

Clarification of the intended scope of a globally harmonized system of classification and labelling of chemicals

The following text was drafted and approved by the IOMC *CG/HCCS* during its 8th Consultation On 24-25 June 1996 in Washington, USA.

1. At the second meeting of the Intersessional Group of the Intergovernmental Forum on Chemical Safety (IFCS) held 5-8 March 1996 in Canberra Australia the CG/HCCS responded to **questions regarding the scope** of coverage for harmonization to clarify that it includes all hazardous chemicals regardless of their intended use. It was further acknowledged that as the work develops in these areas, there may be some limited instances where integration of certain products into the overall harmonised system may have to be delayed as there will be a need to research implications and consider the impact of the approach. ISG-2 recommended that the CG/HCC consider whether the group's terms of reference need to be clarified to specifically address the scope issue.

2. The terms of reference already include principles which guide the harmonization activities. The CG/HCCS is overseeing the development of a globally harmonised system for hazard classification, labelling, and material safety data sheets. The resulting harmonised system is to be based on the hazards arising from the intrinsic properties of chemicals and mixtures of chemicals. The principles further address the need to have a common and coherent basis for protection of transport, consumers, workers, and the environment thus encompassing the hazards arising from the chemical during all phases of its life cycle.

3. Intrinsic properties remain the same for a chemical or mixture even when it is used in different situations. For example, a chemical or mixture may have pesticidal uses. If the chemical presents a certain hazard, such as acute toxicity, that hazard will be present in the manufacturing or formulating facility, in the course of shipping the chemical, and in its application as a pesticide. It would therefore be inappropriate to select one part of that use cycle to provide protections via hazard classification and labelling, but ignore the fact that the chemical presents the same hazards from exposures at other stages of the chemical's Life cycle.

4. Therefore, the work on harmonization of hazard classification and labelling focuses on a harmonised system for all chemicals, and mixtures of such chemicals, including when they are intended to be used as pesticides, pharmaceuticals, food additives, and other chemical use categories that may be currently regulated by specific and strict standards. It is thus important for all national authorities to ensure that classification arid labelling for these diverse purposes are considered as positions are developed on the various criteria. Potential problems in accomplishing comprehensive harmonization of all types of chemicals and mixtures need to be identified early in the process so they can be addressed and resolved.

5. The possible exclusion of a defined chemical use category from the application of the harmonized system (or the postponement of work) will only be considered when its inclusion would result in an unacceptable delay in reaching a consensus.

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agenda item 4 (b))

GLOBAL HARMONIZATION OF SYSTEMS OF CLASSIFICATION AND LABELLING OF CHEMICALS

Physical hazards

Cut off (threshold) value for Organic Peroxides

Implementation of Agenda 21
Classification of Reactive Substances

Transmitted by the Observer from New Zealand

Introduction

At the thirteenth session of the Sub-Committee New Zealand presented an informal paper INF.3. This paper outlined a number of concerns relating to the classification of Flammable and Reactive Substances in the proposed Globally Harmonized System. During the Working Group meeting, New Zealand was invited to present formal papers to the fourteenth session of the Sub-Committee.

New Zealand is currently developing Regulations for the Hazardous Substances and New Organisms (HSNO) Act. This Act implements the concepts and philosophy of the Globally Harmonized Chemical Classification System to New Zealand's Domestic Legislation. While developing these Regulations, we discovered some serious problems in applying the current UN transport classification criteria to the controls needed for worker, consumer and environmental safety. The difficulty arises from the UN transport classification's use of packaging to modify the risk.

As reported in ST/SG/AC.10/C.3/26 the Working Group agreed that the cut off value for Organic Peroxide be

Any organic peroxide, except organic peroxides or organic peroxides formulations: (a) containing not more than 1.0% available oxygen from the organic peroxides when containing not more than 1.0% hydrogen peroxide; or	Test series A to H (Refer to Part II of the Manual of Tests and criteria)
(b) containing not more than 0.5% available oxygen from the organic peroxides when containing more than 1.0% but not more than [7.0%] hydrogen peroxide. Classification under types A to G in accordance with the criteria of the Manual of Tests and Criteria, Part II ***Note 1***: *Type G is not dangerous for transport.* ***Note 2***: *Sub-divisions may not be necessary for all systems.*	

The hydrogen peroxide concentration of 7% is still subject to confirmation at the fourteenth session.

New Zealand's Position re the Globally Harmonized Classification System

New Zealand strongly supports the creation of a Globally Harmonized Chemical Classification System. We also strongly support the Terms of Reference of the CG/HCCS. Our position is stated in ST/SG/AC.10/C.3/1997/68. This position is the same as the position presented in INF.3 at the thirteenth session on the Sub-Committee.

Proposal

New Zealand proposes that the 7% Hydrogen Peroxide (referred to in part (b) of the criteria) be reduced to 5% Hydrogen Peroxide.

Justification

If five percent Hydrogen Peroxide is substituted for Seven percent Hydrogen Peroxide, part (b) of the Criteria aligns with the second part of the criteria used in the EU Directive 67/548.

We recommend the Working Group adopt the proposed definition for cut off values because -

(i) it provides for one standard approach that can be used in global harmonisation;
(ii) it preserves existing safety criteria as required by the terms of reference;
(iii) it meets the proposal by the observer from CEFIC (ST/SG/C.10/C.3/1997/11) that there be one system
(iv) it allows for potential hazards outside of the transport mode to be addressed, without imposing additional costs; and

(v) it exempts Organic Peroxide and Organic Peroxide mixtures and solutions, which present a low risk (as Organic Peroxides) from controls in any part of the life cycle

(a) At the thirteenth session a number of experts indicated that they felt that there might be a significant number of products or formulations which could be captured by lowing the Hydrogen Peroxide concentration from 7% to 5%. No specific examples were cited at the thirteenth session.

(b) New Zealand has carried out an extensive search for products or formulations which may be affected by reducing the Hydrogen Peroxide concentration to five percent. We have not found any products which would be reclassified. This has included a search of our National Poisons Centre's product data base, Ministry of Health and Ministry of Agriculture's product registrations data bases. These data bases include Pesticide, Animal Remedies, Medicines, and Food, Dairy and Brewing sanitising products. We have also sought information from overseas.

(c) The only product which comes close, is one used for sanitising in the brewing, food and dairy industry. This has just over one percent available oxygen and twenty-five percent hydrogen peroxide. It is therefor considerably above the cut off value.

(d) In the absence of any proof to the contrary the adoption of the lower cut off value of five percent must be adopted to comply to the terms of reference under which the Working Group is operating, i e. "**that the level of safety will not be reduced**".

Recommendation

That the Committee adopt the cut off value of 5 per cent for hydrogen peroxide, in part (b) of the criteria for Organic Peroxides.

* * * * *

Annex

(a) Search for Organic Peroxide formulations with 5%-7% hydrogen peroxide

1. National Toxicological Database

(a) None found.

(b) The database lists 17 products with H_20_2 in the range 5-7%. Thses are all hair bleaches and do not contain any organic peroxide. They are therefor not relavent.

2. Farming sector

(a) None found on our database for Pesticides or Animal Remedies.

(b) In dairy sector there is one product used to clean vegetables and hydroponics that has 6% H_20_2 formulated with activated alluvial silver. The major hazard from the silver.

(c) Noted Also
(i) Hydrogen Peroxide is also used as a 'buffer' in peroxyacetic acid,

3. Therapeutics

We have a New Zealand compiled database on medicines either sold, or under consideration via an application, or discontinued in NZ. It shows only two peroxides. Hydrogen peroxide and dibenzoyl peroxide.

(a) Hydrogen peroxide has 11 entries and 2 of these are within the range [i.e. 6%] hydrogen peroxide. These are not formulated products i.e. simple solutions only. The other 9 are either above 7% or below 5%. None of these contain any Organic Peroxide.

(b) Dibenzoyl peroxide has 35 entries. Over 30 of these are for formulated products. For reasons to do with who can retail them, these divide readily into 22 that are 5%w/v or less, and the remainder are at 10% or more. Five Percent dibenzoyl peroxide equates to available oxygen of 0.3302% and 10 % equates to 0.6605 % available oxygen. Non of these products were listed as containing any hydrogen peroxide.

Commercially available dibenzoyl peroxide is available in concentrations up to 100%

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GLOBAL HARMONIZATION OF SYSTEMS OF CLASSIFICATION AND LABELLING OF CHEMICALS

Physical hazards

Solutions of Oxidizing Solids not being Liquid Oxidizers

Implementation of Agenda 21
Classification of Reactive Substances

Transmitted by the Observer from New Zealand

Introduction

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New Zealand is currently developing Regulations for the Hazardous Substances and New Organisms (HSNO) Act. This Act implements the concepts and philosophy of the Globally Harmonized Chemical Classification System to New Zealand's Domestic Legislation. While developing these Regulations, we discovered some serious problems in applying the current UN transport classification criteria to the controls needed for worker, consumer and environmental safety. The difficulty arises from the UN transport classification's use of packaging to modify the risk.

New Zealand's Position re the Globally Harmonized Classification System

New Zealand strongly supports the creation of a Globally Harmonized Chemical Classification System. We also strongly support the Terms of Reference of the CG/HCCS. Our position is stated in ST/SG/AC.10/C.3/1997/68 This position is the same as the position presented in INF.3 at the thirteenth session on the Sub-Committee.

Proposal

It is proposed that the Working Group adopt a GHS classification category for volatile liquid solutions that contain a substance which itself satisfies the test for a solid oxidizer but does not meet the classification criteria of a liquid oxidizer. This classification would **not** apply to transport.. This can be represented diagramatically as follows.

(a) **(b)**	**UN Recommendations TDG** **And Globally Harmonised System**
(c) **(d)** (e)	**Globally Harmonised System** Allows for controls in non transport sectors. Occupational, public and environmental safety
(f)	**No Controls Required**

Justification

This proposal is intended to address the potential for the volatile liquid to evaporate, in the event of a leak or accidental spill. This would eventually leading to the reformation of a solid oxidizer. This possibility was considered during the development of the criteria for and tests for solid and liquid oxidizers and the development of test methods O.1 and O.2 in the Manual of Tests and Criteria. At that time it was considered by the Experts not to be a significant risk for transport. However, it was considered to be relevant to longer term storage.

The Globally Harmonised System is to take account of risks in all parts of a product's lifecycle. Therefor storage risks are relevant and should be included in the harmonised system.

What we are proposing is the inclusion of Box 2 labelled "Globally Harmonised System". This is similar to the extra hazard level included for flammable liquids. We again stress this additional level of possible control would not apply to transport, but may apply to parts of cycle covering worker safety, storage, public safety and the environment.

Recommendation

That the Working Group insert an additional hazard level as proposed to address safety in non-transport parts of the lifecycle of these substances.

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GLOBAL HARMONIZATION OF SYSTEMS OF CLASSIFICATION AND LABELLING OF CHEMICALS

Physical hazards

Solutions of Solids Flammable Solids and Self Reactive Substances which do not meet the Classification Criteria of Class 4 Substances

Implementation of Agenda 21
Classification of Reactive Substances

Transmitted by the Observer from New Zealand

Introduction

At the thirteenth session of the Sub-Committee New Zealand present an informal paper INF.3. This paper outlined a number of concerns relating to the classification of Flammable and Reactive Substances in the proposed Globally Harmonized System. During the Working Group meeting, New Zealand was invited to present formal papers to the fourteenth session of the Sub-Committee.

New Zealand is currently developing Regulations for the Hazardous Substances and New Organisms (HSNO) Act. This Act implements the concepts and philosophy of the Globally Harmonized Chemical Classification System to New Zealand's Domestic Legislation. While developing these Regulations, we discovered some serious problems in applying the current UN transport classification criteria to the controls needed for worker, consumer and environmental safety. The difficulty arises from the UN transport classification's use of packaging to modify the risk.

New Zealand's Position re the Globally Harmonized Classification System

New Zealand strongly supports the creation of a Globally Harmonized Chemical Classification System. We also strongly support the Terms of Reference of the CG/HCCS. Our position is stated in ST/SG/AC.10/C.3/1997/68. This position is the same as the position presented in INF.3 at the thirteenth session on the Sub-Committee.

Proposal

It is proposed that the Working Group adopt a GHS classification category for volatile liquid solutions that contain a substance which satisfies the test for a solid Flammable Solids or Self Reactive Substances, but the solution does not meet the classification criteria of any Division of Class 4. This classification would not apply to transport.. This can be represented diagramatically as follows.

(a) **(b)**	**UN Recommendations TDG** **And Globally Harmonised System**
(c) **(d)** (e)	**Globally Harmonised System** Allows for controls in non transport sectors. Occupational, public and environmental safety
(f)	**No Controls Required**

Justification

This proposal is intended to address the potential for the volatile liquid to evaporate in the event of a leak or accidental spill. This would eventually lead to the reformation of a flammable solid or self reactive substance. This risk is not significant during transport but is relevant to longer term storage.

The Globally Harmonised System is to take account of risks in all parts of a product's lifecycle. Storage risks are relevant and should be included in the harmonised system.

What we are proposing is the inclusion of Box 2 labelled "Globally Harmonised System". This is similar to the extra level included for flammable liquids. We again stress this additional level of possible control would not apply to transport but may apply to parts of cycle covering worker safety, storage, public safety and the environment.

Recommendation

That the Working Group insert an additional hazard level as proposed to address safety in non-transport parts of the lifecycle of these substances.

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COMMITTEE OF EXPERTS ON THE
TRANSPORT OF DANGEROUS GOODS

Sub-Committee of Experts on the
Transport of Dangerous Goods
(Fourteenth session,
Geneva, 8-18 December 1997,
agenda item 2 (d))

DRAFT AMENDMENTS TO THE MODEL REGULATIONS ON THE TRANSPORT OF DANGEROUS GOODS

Other draft amendments

Formation of a new Division 4.4 for Desensitized explosives

Transmitted by the Observer from New Zealand

Introduction

In the twelfth and thirteenth sessions of the Sub-Committee meetings various decisions were taken on the classification of desensitised explosives. Traditionally desensitised explosives have been included in Division 4.1 which is named Flammable Solids. During the Twelfth session of the Sub-Committee consideration was given to the classification of a liquid desensitised explosive. At that time there was a strong division of opinion. One faction considered that this substance should be included in Division 4.1 to keep all desensitised explosives under the same heading in the Recommendation. The opposing fraction believed the substance should be classified on the basis of it inherent properties. As it was a liquid and was flammable it was eventually classified as a Class 3 Flammable Liquid.

The desensitisation of explosives is often achieved by diluting them with a suitable phlegmatiser. If this is volatile then the desensitised explosive may again exhibit explosive properties. While this potential to revert to explosives is clearly identified in the Recoomedations for substances which are classified under Division 4.1 (c), this is not the case for desensitised liquid explosive classified in Class 3.

The desensitised explosive nature of these substances is not readily apparent form the Class (Division) label or from the transport documentation.

New Zealand's Position re the Globally Harmonized Classification System

New Zealand strongly supports the creation of a Globally Harmonized Chemical Classification System. We also strongly support the Terms of Reference of the CG/HCCS. Our position is stated in ST/SG/AC.10/C.3/1997/68. This position is the same as the position presented in INF.3 at the thirteenth session on the Sub-Committee.

Proposal

Create a new division in Class 4 being Division 4.4 Desensitised Explosives. The description of this Division would be "substances which are desensitised liquid or solid explosives". This would require a new label. A possible label would be a red upper half with red and orange horizontal stripes in the lower half. Alternatively the lower half could be orange and white horizontal stripes.

Justification

Currently solid desensitised explosives are included in Division 4.1 (c). While the Recommendations clearly identify this group of substances, their latent explosive nature is not apparent from the Class (Division) label or transport documentation. Also, Division 4.1 does not uniquely identify the desensitised explosive nature of the flammable solids as this Division also includes Flammable Solids and Self-Reactive and Related Substances.

The inclusion of all desensitised explosives in the one Division will clearly identify the risk that they may revert to their explosive properties if the phlegmatiser or diluent is lost or evaporates. Placing these substances in a new Division will clearly identify the dual hazards of these substances. That is they are flammable solids or liquids but have the potential to revert to explosives.

Recommendation

That the Committee creates a new division 4.4 for desensitised explosives and adopts an new label to identify this division.

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COMMITTEE OF EXPERTS ON THE TRANSPORT OF DANGEROUS GOODS

Sub-Committee of Experts on the Transport of Dangerous Goods
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GLOBAL HARMONIZATION OF SYSTEMS OF CLASSIFICATION AND LABELLING OF CHEMICALS

Physical hazards

Test Particle Size for Oxidizing Solids

Implementation of Agenda 21
Classification of Reactive Substances

Transmitted by the Observer from New Zealand

Introduction

At the thirteenth session of the Sub-Committee New Zealand present an informal paper INF.3. This paper outlined a number of concerns relating to the classification of Flammable and Reactive Substances in the proposed Globally Harmonized System. During the Working Group meeting, New Zealand was invited to present formal papers to the fourteenth session of the Sub-Committee. Discussion on particle size was deferred until the fourteenth session.

New Zealand is currently developing Regulations for the Hazardous Substances and New Organisms (HSNO) Act. This Act implements the concepts and philosophy of the Globally Harmonized Chemical Classification System to New Zealand's Domestic Legislation. While developing these Regulations, we discovered some serious problems in applying the current UN transport classification criteria to the controls needed for worker, consumer and environmental safety. The difficulty arises from the UN transport classification's use of packaging to modify the risk.

New Zealand's Position re the Globally Harmonized Classification System

New Zealand strongly supports the creation of a Globally Harmonized Chemical Classification System. We also strongly support the Terms of Reference of the CG/HCCS. Our position is stated in ST/SG/AC.10/C.3/1997/68. This position is the same as the position presented in INF.3 at the thirteenth session on the Sub-Committee.

Proposal

It is proposed that the Working Group adopt a GHS classification criteria for the particle size used in the testing of Solid Oxidizers. See Box 2 in the diagram. The UN Recommendations permits substances to be tested as prepared for transport. This accurately reflects the risks involved in transport. However, it does not adequately address the inherent hazard associated with a solid oxidizing substance. Thus it does not provide an adequate level of safety for workers. To reflect the inherent hazard it is proposed that criteria be adopted for the Globally Harmonized System based on testing a uniformly finely divided solid. While we have no strong views on what this fine particle size should be, we note that the EU have already adopted a particle size criteria in EU Directive 67/548. As this is an existing international standard it would make sense to adopt this standard. Viz. A uniform particle size of 0.125 mm.

It is again stressed that this additional classification criteria **would not apply to Transport** but may apply to worker, environmentl and consumer safety. This criteria should not be applied retrospectively to existing substances, unless it is known that they are used in a more finely divided form.

UN Recommendations TDG **And Globally Harmonised System** Controls for Transport
Globally Harmonised System Allows for controls in non transport sectors. Occupational, public and environmental safety
No Controls Required

Justification

The current practice of testing the substances **as transported** provides adequate safety for transport. However, it does not adequately address safety in other parts of the substances lifecycle. Thus the current UN criteria does not adequately meet the terms of reference of the IOMC Co-ordinating Group ST/SG/AC.10/C.3/1997/68).

This proposal is intended to address the potential for a substance which is not classified as an oxidizing substance in the form that it is transported is subsequently processed to form a fine powder. In the finely powdered for the substance may exhibit moderately strong oxidizing potential which is not readily apparent, as there was no hazard warning on the substance before processing. In the diagram above we are proposing to insert Box 2 labelled Globally Harmonised System.

The Globally Harmonised System is intended to address all portions of the products lifecycle. The current UN criteria does not provide sufficient protection for those parts of the lifecycle where the substances is taken out of its packaging. This is most event where the substance might be processed and worker safety compromised.

Insertion of an additional level of possible control (Box 2) enhances worker, consumer and environmental safety. We again stress this additional level of possible control would not apply to transport.

Testing the substance in a finely divided form will correctly identify the inherent hazard associated with the substance. This is meets the terms of reference for the Co-ordinating group (ST/SG/AC.10/C.3/1997/68).

Recommendation

That the Working Group insert an additional hazard level as proposed to address safety in non-transport parts of the lifecycle of these substances.

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COMMITTEE OF EXPERTS ON THE
TRANSPORT OF DANGEROUS GOODS

Sub-Committee of Experts on the
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(Fourteenth session,
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agenda item 4 (b))

GLOBAL HARMONIZATION OF SYSTEMS OF CLASSIFICATION AND LABELLING OF CHEMICALS

Physical hazards

Test Particle Size for Division 4.1

Implementation of Agenda 21
Classification of Reactive Substances

Transmitted by the Observer from New Zealand

Introduction

At the thirteenth session of the Sub-Committee New Zealand present an informal paper INF.3. This paper outlined a number of concerns relating to the classification of Flammable and Reactive Substances in the proposed Globally Harmonized System. During the Working Group meeting, New Zealand was invited to present formal papers to the fourteenth session of the Sub-Committee. Discussion on particle size was deferred until the fourteenth session.

New Zealand is currently developing Regulations for the Hazardous Substances and New Organisms (HSNO) Act. This Act implements the concepts and philosophy of the Globally Harmonized Chemical Classification System to New Zealand's Domestic Legislation. While developing these Regulations, we discovered some serious problems in applying the current UN transport classification criteria to the controls needed for worker, consumer and environmental safety. The difficulty arises from the UN transport classification's use of packaging to modify the risk.

New Zealand's Position re the Globally Harmonized Classification System

New Zealand strongly supports the creation of a Globally Harmonized Chemical Classification System. We also strongly support the Terms of Reference of the CG/HCCS. Our position is stated in ST/SG/AC.10/C.3/1997/68. This position is the same as the position presented in INF.3 at the thirteenth session on the Sub-Committee.

Proposal

It is proposed that the Working Group adopt a GHS classification criteria for the particle size used in the testing of Division 4.1. See Box 2 in the diagram. The UN Recommendations permits substances to be tested as prepared for transport. While this accurately reflects the risks involved in transport it does not adequately address the inherent hazard associated with Division 4.1. This it does not provide an adequate level of safety for workers. To reflect this inherent hazard it is proposed that criteria be adopted for the Globally harmonized System based on testing a uniformly finely divided solid. While we have no strong views on what this fine particle size should be, we note that the EU have already adopted a particle size criteria in EU Directive 67/548. As this is an existing international standard it would make sense to adopt this standard. Viz. A uniform particle size of 0.125 mm.

It is again stressed that this additional classification criteria **would not apply to Transport** but may apply to worker and consumer safety. This criteria should not be applied retrospectively to existing substances, unless it is known that they are used in a more finely divided form.

UN Recommendations TDG **And Globally Harmonised System** Controls for Transport
Globally Harmonised System Allows for controls in non transport sectors Occupational, public and environmental safety
No Controls Required

Justification

The current practice of testing the substances **as transported** provides adequate safety for transport. However, it does not adequately address safety in other parts of the substances lifecycle. Thus the current UN criteria does not adequately meet the terms of reference of the IOMC Co-ordinating Group (ST/SG/AC.10/C.3/1997/68)

This proposal is intended to address the potential for a substance which is not classified as an oxidizing substance in the form that it is transported is subsequently processed to form a fine powder. In the finely powdered for the substance may exhibit moderately strong oxidizing potential which is not readily apparent as there was no hazard warning on the substance before processing. In the diagram above we are proposing to insert Box 2 labelled Globally Harmonised System.

The Globally Harmonised is intended to address all portions of the products lifecycle. The current UN criteria does not provide sufficient protection for those parts of the lifecycle where the substances is taken out of its packaging. This is most evident where the substance might be processed and worker safety compromised.

Insertion of an additional level of possible control (Box 2) enhances worker, consumer and environmental safety. We again stress this additional level of possible control would not apply to transport.

Testing the substance in a finely divided form will correctly identify the inherent hazard associated with the substance. This is meets the terms of reference for the Co-ordinating group (ST/SG/AC.10/C.3/1997/68)

Recommendation

That the Working Group insert an additional hazard level as proposed to address safety in non-transport parts of the lifecycle of these substances.

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COMMITTEE OF EXPERTS ON THE
TRANSPORT OF DANGEROUS GOODS

Sub-Committee of Experts on the
Transport of Dangerous Goods
(Fourteenth session,
Geneva, 8-18 December 1997,
agenda item 4 (b))

GLOBAL HARMONIZATION OF SYSTEMS OF CLASSIFICATION AND LABELLING OF CHEMICALS

Physical hazards

Test Particle Size for Solids of Division 4.2

Implementation of Agenda 21
Classification of Reactive Substances

Transmitted by the Observer from New Zealand

Introduction

At the thirteenth session of the Sub-Committee New Zealand present an informal paper INF.3. This paper outlined a number of concerns relating to the classification of Flammable and Reactive Substances in the proposed Globally Harmonized System. During the Working Group meeting, New Zealand was invited to present formal papers to the fourteenth session of the Sub-Committee. Discussion on particle size was deferred until the fourteenth session.

New Zealand is currently developing Regulations for the Hazardous Substances and New Organisms (HSNO) Act. This Act implements the concepts and philosophy of the Globally Harmonized Chemical Classification System to New Zealand's Domestic Legislation. While developing these Regulations, we discovered some serious problems in applying the current UN transport classification criteria to the controls needed for worker, consumer and environmental safety. The difficulty arises from the UN transport classification's use of packaging to modify the risk.

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New Zealand strongly supports the creation of a Globally Harmonized Chemical Classification System. We also strongly support the Terms of Reference of the CG/HCCS. Our position is stated in ST/SG/AC.10/C.3/1997/68. This position is the same as the position presented in INF.3 at the thirteenth session on the Sub-Committee.

Proposal

It is proposed that the Working Group adopt a GHS classification criteria for the particle size used in the testing of solids of Division 4.2. See Box 2 in the diagram. The UN Recommendations permits substances to be tested as prepared for transport. While this accurately reflects the risks involved in transport it does not adequately address the inherent hazard associated with a solids of Division 4.2. This it does not provide an adequate level of safety for workers. To reflect this inherent hazard it is proposed that criteria be adopted for the Globally harmonized System based on testing a uniformly finely divided solid. While we have no strong views on what this fine particle size should be, we note that the EU have already adopted a particle size criteria in EU Directive 67/548. As this is an existing international standard it would make sense to adopt this standard. Viz. A uniform particle size of 0.125 mm.

It is again stressed that this additional classification criteria **would not apply to Transport** but may apply to worker and consumer safety. This criteria should not be applied retrospectively to existing substances, unless it is known that they are used in a more finely divided form.

UN Recommendations TDG **And Globally Harmonised System** Controls for Transport
Globally Harmonised System Allows for controls in non transport sectors. Occupational, public and environmental safety
No Controls Required

Justification

The current practice of testing the substances **as transported** provides adequate safety for transport. However, it does not adequately address safety in other parts of the substances lifecycle. Thus the current UN criteria does not adequately meet the terms of reference of the IOMC Co-ordinating Group (Annex 2)

This proposal is intended to address the potential for a substance which is not classified as an oxidizing substance in the form that it is transported is subsequently processed to form a fine powder. In the finely powdered for the substance may exhibit moderately strong oxidizing potential which is not readily apparent as there was no hazard warning on the substance before processing. In the diagram above we are proposing to insert Box 2 labelled Globally Harmonised System.

The Globally Harmonised is intended to address all portions of the products lifecycle. The current UN criteria does not provide sufficient protection for those parts of the lifecycle where the substances is taken out of its packaging. This is most evident where the substance might be processed and worker safety compromised.

Insertion of an additional level of possible control (box 2) enhances worker, consumer and environmental safety. We again stress this additional level of possible control would not apply to transport.

Testing the substance in a finely divided form will correctly identify the inherent hazard associated with the substance. This meets the terms of reference for the Co-ordinating group (ST/SG/AC.10/C.3/1997/68).

Recommendation

That the Working Group insert an additional hazard level as proposed to address safety in non-transport parts of the lifecycle of these substances.

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COMMITTEE OF EXPERTS ON THE
TRANSPORT OF DANGEROUS GOODS

Sub-Committee of Experts on the
Transport of Dangerous Goods
(Fourteenth session,
Geneva, 8-18 December 1997,
agenda item 4 (b))

GLOBAL HARMONIZATION OF SYSTEMS OF CLASSIFICATION AND LABELLING OF CHEMICALS

Physical hazards

Test Particle Size for Solids of Division 4.3

Implementation of Agenda 21
Classification of Reactive Substances

Transmitted by the Observer from New Zealand

Introduction

At the thirteenth session of the Sub-Committee New Zealand present an informal paper INF.3. This paper outlined a number of concerns relating to the classification of Flammable and Reactive Substances in the proposed Globally Harmonized System. During the Working Group meeting, New Zealand was invited to present formal papers to the fourteenth session of the Sub-Committee.

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Proposal

It is proposed that the Working Group adopt a GHS classification criteria for the particle size used in the testing of solids of Division 4.3. See Box 2 in the diagram. The UN Recommendations permits substances to be tested as prepared for transport. While this accurately reflects the risks involved in transport it does not adequately address the inherent hazard associated with a solids of Division 4.3. This it does not provide an adequate level of safety for workers. To reflect this inherent hazard it is proposed that criteria be adopted for the Globally harmonized System based on testing a uniformly finely divided solid. While we have no strong views on what this fine particle size should be, we note that the EU have already adopted a particle size criteria in EU Directive 67/548. As this is an existing international standard it would make sense to adopt this standard. Viz. A uniform particle size of 0.125 mm.

It is again stressed that this additional classification criteria **would not apply to Transport** but may apply to worker and consumer safety. This criteria should not be applied retrospectively to existing substances, unless it is known that they are used in a more finely divided form.

UN Recommendations TDG **And Globally Harmonised System** Controls for Transport
Globally Harmonised System Allows for controls in non transport sectors. Occupational, public and environmental safety
No Controls Required

Justification

The current practice of testing the substances **as transported** provides adequate safety for transport. However, it does not adequately address safety in other parts of the substances lifecycle. Thus the current UN criteria does not adequately meet the terms of reference of the IOMC Co-ordinating Group(Annex 2)

This proposal is intended to address the potential for a substance which is not classified as an oxidizing substance in the form that it is transported is subsequently processed to form a fine powder. In the finely powdered for the substance may exhibit moderately strong oxidizing potential which is not readily apparent as there was no hazard warning on the substance before processing. In the diagram above we are proposing to insert Box 2 labelled Globally Harmonised System.

The Globally Harmonised is intended to address all portions of the products lifecycle. The current UN criteria does not provide sufficient protection for those parts of the lifecycle where the substances is taken out of its packaging. This is most evident where the substance might be processed and worker safety compromised.

Insertion of an additional level of possible control (box 2) enhances worker, consumer and environmental safety. We again stress this additional level of possible control would not apply to transport.

Testing the substance in a finely divided form will correctly identify the inherent hazard associated with the substance. This is meets the terms of reference for the Co-ordinating group(ST/SG/AC.10/C.3/1997/68).

Recommendation

That the Working Group insert an additional hazard level as proposed to address safety in non-transport parts of the lifecycle of these substances.